

# PATENT COOPERATION TREATY

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From the INTERNATIONAL SEARCHING AUTHORITY

DEC 02 2004

To:  
STEVEN J. ROCCI  
WOODCOCK WASHBURN LLP  
ONE LIBERTY PLACE, 46TH FLOOR  
PHILADELPHIA, PA 19103

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**PCT**

Woodcock Washburn

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference MSFT-4416	Date of mailing (day/month/year)
International application No. PCT/US04/24288	International filing date (day/month/year) 29 July 2004 (29.07.2004)
Applicant MICROSOFT CORPORATION	

RECEIVED

FOR FURTHER ACTION See paragraphs 1 and 4 below

DEC - 7 2004

Mary Ann Devine

Woodcock Washburn

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.  
  
**Filing of amendments and statement under Article 19:**  
 The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):  
  
**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.  
  
**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 740 14 35  
  
**For more detailed instructions, see the notes on the accompanying sheet.**
2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
  - ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
  - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.
4. **Reminders**  
 Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.  
  
 The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.  
  
 Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.  
  
 In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.  
  
 See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer  Neveen Abel-Jalil  Telephone No. 571-272-4074
--	---

Form PCT/ISA/220 (January 2004)

(See notes on accompanying sheet)

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
STEVEN J. ROCCI  
WOODCOCK WASHBURN LLP  
ONE LIBERTY PLACE, 46TH FLOOR  
PHILADELPHIA, PA 19103

## PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing  
(day/month/year)

29 NOV 2004

Applicant's or agent's file reference  
MSFT-4416

**FOR FURTHER ACTION** See paragraphs 1 and 4 below

International application No.  
PCT/US04/24288

International filing date  
(day/month/year) 29 July 2004 (29.07.2004)

Applicant  
MICROSOFT CORPORATION

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: +41 22 740 14 35

**For more detailed instructions, see the notes on the accompanying sheet.**

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:**

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

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The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/ US  
Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
Facsimile No. (703) 305-3230

Authorized officer

Neveen Abel-Jalil

Telephone No. 571-272-4074

Form PCT/ISA/220 (January 2004)

(See notes on accompanying sheet)

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference MSFT-4416	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US04/24288	International filing date ( <i>day/month/year</i> ) 29 July 2004 (29.07.2004)	(Earliest) Priority Date ( <i>day/month/year</i> ) 21 August 2003 (21.08.2003)
Applicant MICROSOFT CORPORATION		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the Report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 36



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/24288

## Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

Several embodiments of the present invention employ synchronization adapters for synchronizing information between "WinFS" and non-"WinFS" data sources (Figure 36, 3622/3666). Examples of adapters include an adapter that synchronizes address book information between a "WinFS" contacts folder and a non-WinFS mailbox (Figure 36, 3642). In these instances, adapter developers might use the "WinFS" synchronization core services API described herein for accessing services provided by the "WinFS" (Figure 36, 3612) synchronization platform in order to develop schema transformation code between the "WinFS" (Figure 36, 3612) schema and the non-"WinFS" data source schema (Figure 36, 3624). Additionally, the adapter developer provides protocol support for communicating changes with the non-"WinFS" data source. A synchronization adapter (Figure 36, 3662) is invoked and controlled by using the synchronization controller API and reports progress and errors using this API (Figure 36, 3652).



# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/24288

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 17/30

US CL : 707/100, 707/102, 707/200, 707/201

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 707/100, 707/102, 707/200, 707/201

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST Database V 1.4.1.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0152422 A1 (SHARMA et al.) 17 October 2002 (17.10.2004), Figure 2, page 1, paragraphs 0011-0014, page 3, paragraphs 0036-0038, page 5, paragraph 0062, page 6, paragraphs 0074-0079.	1-30
A, E	US 6,772,178 B2 (MANDAL et al. ) 3 August 2004 (3.8.2004).	1-30



Further documents are listed in the continuation of Box C.



See patent family annex.

### \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

03 November 2004 (03.11.2004)

Date of mailing of the international search report

29 NOV 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Neveen Abel-Jalil

Telephone No. 571-272-4074

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:  
STEVEN J. ROCCI  
WOODCOCK WASHBURN LLP  
ONE LIBERTY PLACE, 46TH FLOOR  
PHILADELPHIA, PA 19103

# PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year) <span style="float: right; font-size: 1.2em;">29 NOV 2004</span>		
Applicant's or agent's file reference  MSFT-4416	<b>FOR FURTHER ACTION</b> See paragraph 2 below	
International application No.  PCT/US04/24288	International filing date (day/month/year)  29 July 2004 (29.07.2004)	Priority date (day/month/year)  21 August 2003 (21.08.2003)
International Patent Classification (IPC) or both national classification and IPC  IPC(7): G06F17/30 and US Cl.: 707/100, 707/102, 707/200, 707/201		
Applicant  MICROSOFT CORPORATION		

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I      Basis of the opinion
- ☐ Box No. II      Priority
- ☐ Box No. III      Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV      Lack of unity of invention
- ☒ Box No. V      Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI      Certain documents cited
- ☐ Box No. VII      Certain defects in the international application
- ☐ Box No. VIII      Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Neveen Abel-Jalil Telephone No. 571-272-4074
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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/24288

**Box No. I Basis of this opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US04/24288

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-30</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-30</u>	NO
Industrial applicability (IA)	Claims <u>1-30</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Please See Continuation Sheet



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US04/24288

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

**V. 2. Citations and Explanations:**

Claims 1-30 lack novelty under PCT Article 33(2) as being anticipated by Sharma et al. (U.S. Pub. No. 2002/0152422 A1).

Claim 1 teaches a storage platform system for a hardware/software interface system (e.g., WinFS), said storage system comprising:

multiple instances of a storage platform (See page 5, paragraph 0058);  
a synchronization subsystem native to the hardware/software interface system that enable the system to synchronize the multiple instances of said storage platform (See page 5, paragraph 0058).

Claim 2 teaches wherein the synchronization subsystem synchronizes only a subset of data, from among the entirety of data on said data store, during a synchronization operation (See page 6, paragraphs 0073-0074).

Claim 3 teaches wherein a first instance of the storage platform is a replica, that is, running on a hardware/software interface system that has the synchronization subsystem (e.g., WinFS), and a second instance of the storage platform is a data source, that is, running on a hardware/software interface system that does not have the synchronization subsystem (e.g., non WinFS) (See page 6, paragraph 0075, also see figure 4, 500).

Claim 4 teaches wherein the synchronization between the replica and the data source is facilitated by a synchronization adapter that virtualizes the data source by interfacing with an application programming interface (API) of the hardware/software interface system of the replica (See page 7, column 1, lines 27-67).

Claim 5 teaches wherein a first pair of instances synchronizes changes independently of a second pair of instances, and wherein both the first pair of instances and the second pair of instances are part of a common sync community (See page 7, column 2, lines 1-27).

Claim 6 teaches wherein conflicts in synchronization are automatically detected and resolved based on predefined determinable criteria (See page 6, paragraphs 0083-0084).

Claim 7 teaches wherein certain of said conflicts are resolved by being logged for manual resolution by an end-user (See page 7, column 2, lines 27-67).

Claim 8 teaches wherein the synchronization subsystem tracks the state of previous synchronizations with a sync partner, and thereby only synchronizes change units with that partner that have changed since the last synchronization (i.e., "net changes") (See page 7, column 2, lines 1-27).

Claim 9 teaches a method for synchronizing multiple instances of a storage platform for a hardware/software interface systems (e.g., WinFS), said method comprising:  
dividing said storage platform into basic units of granularity (e.g., change units) (See page 5, paragraph 0058);

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US04/24288

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

sequentially enumerating changes and tracking said changes on a per change unit basis (See page 2, paragraph 0022);  
for each instance, tracking the state of changes for that instances, as well as the state of changes for a plurality of other known instances in the sync community (sync partners) (See page 2, paragraph 0020); and  
for synchronization, identifying new changes by comparing the enumerated changes for a particular instance with the state of changes for that instance (See page 5, paragraphs 0062-0063).

Claim 10 teaches wherein a first instance, a replica, is instantiated on a hardware/software interface system that directly supports Item-based synchronization (WinFS) and wherein a second instance, a data source, is instantiated on a hardware/software interface system that does not directly support Item-based synchronization (non-WinFS), said method further comprising the use of an adapter to virtualize the non-WinFS instance via a synchronization application programming interface (See page 4, paragraph 0056).

Claim 11 teaches comprising detecting synchronization conflicts at the level of change unit granularity (See page 2, paragraph 0017).

Claim 12 teaches further comprising:

instances reporting success, failure, and/or conflicts at individual change unit level on change application (sync data) (See page 2, paragraphs 0021-0023); and  
applications (including but not limited to adapters and other synchronization controlling applications) using sync data for updating a backend state (See page 5, paragraphs 0070-0072).

Claim 13 teaches method for synchronizing a replica with a data source (each a sync partner), wherein both said replica and said data source have change state information that is maintained by each synch partner, and wherein said data source (non-WinFS) uses an adapter to interface with a hardware/software interface system of said replica (WinFS), said method comprising:

said replica sending to said adapter an updated state information for said replica that, based on a last state information for said data source, reflect changes that have been made since the last synchronization as reflected in said last state information for said data source ("new changes") (See page 3, paragraphs 0040-0043); and

said adapter, receiving said updated state information for said replica and said new changes, implementing as many changes to the data source as possible and tracking success or failure for each change on a change unit by change unit basis (See page 6, paragraphs 0083-0085).

Claim 14 teaches further comprising:

said adapter calculating the new state of the data source based on the success or failure for each change on a change unit by change unit basis, storing this new state information, and transmitting this new state information to the hardware/software interface system of the replica (WinFS) said hardware/software interface system of the replica (WinFS) storing said new state information for said data source for future use by said replica (See page 5, paragraph 0058).

Claim 15 teaches further comprising:

said adapter transmitting to the hardware/software interface system of the replica (WinFS) the success or failure for each change on a change unit by change unit basis (See page 1, paragraph 0013);  
said hardware/software interface system of the replica (WinFS) calculating a new state information for the data source based on the success or failure for each change to the data source on a change unit by change unit basis (See page 2, paragraph 0022);  
said hardware/software interface system of the replica (WiriFS) transmitting the new state information to the adapter and storing said new state information for future use by said replica (See page 2, paragraph 0018); and  
said adapter receiving and storing said new state information (See page 2, paragraph 0021).

Claim 16 teaches computer-readable medium comprising computer-readable instructions for a storage platform system on a hardware/software interface system (e.g., WinFS), said storage system comprising instructions for synchronizing a local instance from among multiple instances of a storage platform (See page 6, paragraphs 0076-0078).

Claim 17 teaches wherein the synchronization subsystem synchronizes only a subset of data, from among the entirety of data on said data store, during a synchronization operation (See page 6, paragraphs 0079-0081).

Claim 18 teaches wherein a first instance of the storage platform is a replica, that is, running on a hardware/software interface system that has the synchronization subsystem (e.g., WinFS), and a second instance of the storage platform is a data source, that is, running on a hardware/software interface system that does not have the synchronization subsystem (e.g., non-WinFS) (See page 5, paragraph 0058).

Claim 19 teaches wherein the synchronization between the replica and the data source is facilitated by a synchronization adapter that virtualizes the second instance by interfacing with an application programming interface (API) of the hardware/software interface system of the first instance (See page 5, paragraph 0058).

Claim 20 teaches wherein a first pair of instances synchronizes changes independently of a second pair of instances, and wherein both

**WRITTEN OPINION OF THE  
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International application No.  
PCT/US04/24288

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

the first pair of instances and the second pair of instances are part of a common sync community (See page 7, column 2, lines 1-27).

Claim 21 teaches wherein conflicts in synchronization are automatically detected and resolved based on predefined determinable criteria (See page 6, paragraphs 0083-0084).

Claim 22 teaches wherein certain of said conflicts are resolved by being logged for manual resolution by an end-user (See page 7, column 2, lines 27-67).

Claim 23 teaches wherein the synchronization subsystem tracks the state of previous synchronizations with a sync partner, and thereby only synchronizes change units with that partner that have changed since the last synchronization (i.e., "net changes") (See page 7, column 2, lines 1-27).

Claim 24 teaches computer-readable medium comprising computer-readable instructions for synchronizing multiple instances of a storage platform for a hardware/software interface systems (e.g., WinFS), said computer-readable instructions comprising instructions for:

- dividing said storage platform into basic units of granularity (e.g., change units) (See page 5, paragraphs 0071-0072);
- sequentially enumerating changes and tracking said changes on a per change unit basis (See page 2, paragraph 0022);
- for each instance, tracking the state of changes for that instances, as well as the state of changes for a plurality of other known instances in the sync community (sync partners) (See page 2, paragraph 0020); and
- for synchronization, identifying new changes by comparing the enumerated changes for a particular instance with the state of changes for that instance (See page 5, paragraphs 0062-0063).

Claim 25 teaches comprising instructions whereby a first instance, a replica, is instantiated on a hardware/software interface system that directly supports Item-based synchronization (WinFS) and wherein a second instance, a data source, is instantiated on a hardware/software interface system that does not directly support Item-based synchronization (non-WinFS), said method further comprising the use of an adapter to virtualize the non-WinFS instance via a synchronization application programming interface (See page 4, paragraphs 0056).

Claim 26 teaches further comprising detecting synchronization conflicts at the level of change unit granularity (See page 5, paragraphs 0071-0072).

Claim 27 teaches comprising:

- instances reporting success, failure, and/or conflicts at individual change unit level on change application (sync data) (See page 2, paragraphs 0021-0023); and
- applications (including but not limited to adapters and other synchronization controlling applications) using sync data for updating a backend state (See page 5, paragraphs 0070-0072).

Claim 28 teaches computer-readable medium comprising computer readable instructions for synchronizing a replica with a data source (each a sync partner), wherein both said replica and said data source have change state information that is maintained by each sync partner, and wherein said data source (non-WinFS) uses an adapter to interface with a hardware/software interface system of said replica (WinFS) (See page 3, paragraphs 0040-0043), said computer-readable instructions comprising instructions for said replica to send to said adapter an updated state information for said replica that, based on a last state information for said data source, reflect changes that have been made since the last synchronization as reflected in said last state information for said data source ("new changes"), such that said adapter, receiving said updated state information for said replica and said new changes, can implement as many changes to the data source as possible and track success or failure for each change on a change unit by change unit basis (See page 6, paragraphs 0083-0086).

Claim 29 teaches said hardware/software interface system of the replica (WinFS) storing said new state information for said data source for future use by said replica, provided that said adapter has calculated the new state of the data source based on the success or failure for each change on a change unit by change unit basis and has this new state information and transmitted this new state information to the hardware/software interface system of the replica (WinFS) (See page 5, paragraph 0058).

Claim 30 teaches wherein said adapter transmits to the hardware/software interface system of the replica (WinFS) the success or failure for each change on a change unit by change unit basis, further comprising instructions for:

- said hardware/software interface system of the replica (WinFS) to calculate a new state information for the data source based on the success or failure for each change to the data source on a change unit by change unit basis (See page 2, paragraph 0022);
- said hardware/software interface system of the replica (WinFS) to transmit the new state information to the adapter and storing said new state information for future use by said replica, such that said adapter can receive and store said new state information (See page 6, paragraphs 0077-0079).

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US04/24288

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.



## NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article," "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

#### **What parts of the international application may be amended ?**

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Preliminary Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

**When ?** Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

#### **Where not to file the amendments ?**

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

**How ?** Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

**The amendments must be made in the language in which the international application is to be published.**

#### **What documents must/may accompany the amendments ?**

##### **Letter (Section 205(b)):**

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

**The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.**